

Claims

1. A directional antenna device comprising an antenna unit having directivity provided on a fixed body fixed at a predetermined position, the antenna unit receiving a radio wave in a microwave band transmitted from a communication unit provided on a movable mobile body,

characterized in that the antenna unit includes:

a plurality of directional antennas provided to have directivities in different directions; and

a reception selecting unit for selecting one of the plurality of directional antennas, which is arranged to be oriented in a transmission direction in which the radio wave travels to reach the fixed body, to receive the radio wave.

2. The directional antenna device according to claim 1, characterized in that:

each of the directional antennas has a directional characteristic corresponding to a predetermined area; and

the reception selecting unit selects one of the directional antennas, which has received the most intense radio wave within the directional characteristic area.

3. The directional antenna device according to claim 1 or 2, characterized in that the antenna unit includes the plurality of directional antennas radially arranged so that their tips are

oriented outward, and when it is assumed that an intersection of axes of the plurality of directional antennas is a base point, the directional antennas are arranged in different three-dimensional directions at predetermined angular intervals, when viewed from the base point.

4. The directional antenna device according to claim 3, characterized in that the predetermined angle is 45° on an air-to-ground horizontal surface or an air-to-ground vertical surface.